



## PATENT SPECIFICATION

DRAWINGS ATTACHED

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## COMPLETE SPECIFICATION

## Doctor Blade

We, LODDING ENGINEERING CORPORATION, a Corporation duly organized and existing under the laws of the State of Massachusetts, United States of America, of Sword Street, Auburn, Massachusetts, United States of America, do hereby declare the invention for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to doctor blades for use in paper making machinery and has for its object to provide an improved form of construction designed to prolong the effective life of the blade and to prevent scratching of the roll surface which is being doctored.

According to the invention a doctor blade for use in paper making has a layer of aluminium oxide on its scraping edge in permanent bonded relation to the blade.

As doctor blades are commonly made of steel, aluminium oxide will wear many times longer than a steel edge while at the same time being of a character providing against scoring or scratching of the roll surface which is being doctored.

Reference will now be made to the accompanying drawings which illustrate by way of example, a construction according to the invention and in which:—

Fig. 1 is a perspective view partly in section through the operative or working edge of a doctor blade having the aluminium oxide edge applied thereto and showing the relationship thereof with respect to the roll surface, and

Figs. 2 to 5 are sectional views showing modifications.

As shown in the drawing, the roll surface being operated upon is indicated by the reference numeral 10. The doctor blade 12 ordinarily is applied with various amounts of pressure to this surface to scrape the same. The ordinary doctor blade may be square-

edged and one corner or edge is applied to the roll as is well known.

In the arrangement shown in Fig. 1 a lower portion indicated by the broken lines 14 is removed from the doctor blade 12. This operation removes the corner or edge 16 which would be the normal operating edge. This removal leaves a bevelled surface 18 on the under side of the doctor blade and to this surface the aluminium oxide is applied. In this form of the invention the aluminium oxide application replaces the portion cut away and includes three integral portions, namely a thin rear portion 20 extending partially beneath the doctor blade, a portion 22 of substantially triangular section and a rectilinear portion 26 which constitutes the front of the blade and whose thickness is indicated at 28 with an operative edge shown at 24. Thus, the entire working edge of the doctor blade is substantially encased in the aluminium oxide whereby as the scraping edge gradually wears down it will wear substantially parallel to the edge 16.

The aluminium oxide is applied by "flame plating". The material in granular form is heated and forced onto the steel surface where desired as by a gun type of pressure application.

Although the preferred form of the invention has been described, it is also possible to carry out the invention by other forms as shown in Figs. 2 and 3. In Fig. 2 for instance, the extreme edge 30 alone is coated or plated with the aluminium oxide as at 32; and as shown in Fig. 3 this edge and also the bottom may be treated as at 34 forming an L-shaped angle of wear material.

Now referring to Fig. 4 there is shown a form of doctor blade at 36 which is originally provided with a beveled edge 37 and the aluminium oxide can be applied in a strip along this surface as at 38 maintaining the sharp edge at 40 of the aluminium oxide

which corresponds to the original sharp edge 42.

- Referring now to Fig. 5, there is shown a doctor blade 44 which has a beveled edge 46 forming an edge 48 and there is an undercut portion 50 forming a shoulder at 52. The aluminium oxide is then applied to cover the surface 46 and fill up the undercut portion 50, being in a kind of irregular V-shape formation having the legs 54 and 56 forming the sharp edge 58.

WHAT WE CLAIM IS:—

1. A doctor blade for use in paper making having a layer of aluminium oxide on its scraping edge in permanent bonded relation to the blade.
2. A doctor blade according to Claim 1 comprising an elongated flat metallic body terminating in a rectilinear end which is completely covered by a coating or layer of aluminium oxide one edge of which forms the scraping edge.
3. A doctor blade according to Claim 2 wherein the scraping edge is formed by one edge of a layer of aluminium oxide formed integral with a rearwardly extending portion

having an inclined upper surface terminating in a thin rectilinear extension, the said inclined surface engaging a correspondingly shaped recess in the metal blade.

4. A doctor blade according to Claim 2 wherein the rectilinear end of the metallic body is coated or plated with a rectilinear body of aluminium oxide.

5. A doctor blade according to Claim 4 wherein the aluminium oxide body is L-shaped in cross-section with one arm extending rearwardly beneath the metallic body.

6. A doctor blade according to Claim 2 wherein the forward or operative end of the metallic body is bevelled and provided with a coating of aluminium oxide of similar form to provide a bevelled scraping edge.

7. A doctor blade constructed and arranged substantially as herein described with reference to any of the accompanying drawings.

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